

METHOD AND DEVICE FOR DETECTING FASCIA DAMAGE AND REPAIRING THE SAME

BACKGROUND

[0001] Technical Field

[0002] This disclosure relates generally to electronic devices, and more particularly to user input elements for electronic devices.

[0003] Background Art

[0004] “Intelligent” portable electronic devices, such as smart phones, tablet computers, and the like, are becoming increasingly powerful computational tools. Moreover, these devices are becoming more prevalent in today’s society. For example, not too long ago a mobile telephone was a simplistic device with a twelve-key keypad that only made telephone calls. Today, “smart” phones, tablet computers, personal digital assistants, and other portable electronic devices not only make telephone calls, but also manage address books, maintain calendars, play music and videos, display pictures, and surf the web.

[0005] As the capabilities of these electronic devices have progressed, so too have their user interfaces. Prior art physical keypads having a limited number of keys have given way to sophisticated user input devices such as touch sensitive displays. Touch sensitive displays include sensors for detecting the presence of an object such as a finger or stylus when it is adjacent to the display. By placing the object on the touch sensitive surface, the user can manipulate and control the electronic device, and in many cases without the need for a physical keypad.

[0006] One drawback to touch sensitive displays is that they can be damaged. Many displays or surface layers of modern electronic devices are manufactured from glass or plastic. Either of these materials is susceptible to deformation such as scratching, breakage, or bending. Even the most robust materials like thermally tempered glass can suffer deformation if the device is dropped or if a sharp object contacts the display with the necessary amount of force. Once the display is damaged, the electronic device is often considered by the user to be unusable due to the fact that the primary user input has become compromised. It would be advantageous to have a more robust electronic device.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The accompanying figures, where like reference numerals refer to identical or functionally similar elements throughout the separate views and which together with the detailed description below are incorporated in and form part of the specification, serve to further illustrate various embodiments and to explain various principles and advantages all in accordance with the present disclosure.

[0008] FIG. 1 illustrates one explanatory electronic device in accordance with one or more embodiments of the disclosure.

[0009] FIG. 2 illustrates an exploded view of one explanatory electronic device in accordance with one or more embodiments of the disclosure.

[0010] FIG. 3 illustrates one explanatory fascia for an electronic device in accordance with one or more embodiments of the disclosure.

[0011] FIG. 4 illustrates another explanatory fascia for an electronic device in accordance with one or more embodiments of the disclosure.

[0012] FIG. 5 illustrates another explanatory fascia for an electronic device in accordance with one or more embodiments of the disclosure.

[0013] FIG. 6 illustrates yet another explanatory fascia for an electronic device in accordance with one or more embodiments of the disclosure.

[0014] FIG. 7 illustrates still another explanatory fascia for an electronic device in accordance with one or more embodiments of the disclosure.

[0015] FIG. 8 illustrates another explanatory fascia for an electronic device in accordance with one or more embodiments of the disclosure.

[0016] FIG. 9 illustrates a schematic block diagram of one explanatory electronic device in accordance with one or more embodiments of the disclosure.

[0017] FIG. 10 illustrates an explanatory electronic device in accordance with one or more embodiments of the disclosure where a fascia has suffered deformation along a portion of the fascia.

[0018] FIG. 11 illustrates one explanatory method for detecting deformation along a portion of the fascia in accordance with one or more embodiments of the disclosure.

[0019] FIG. 12 illustrates another explanatory method for detecting deformation along a portion of the fascia in accordance with one or more embodiments of the disclosure.

[0020] FIG. 13 illustrates one explanatory electronic device in accordance with one or more embodiments of the disclosure when one or more thermal elements selectively apply heat to a shape memory polymer to reverse at least some deformation in accordance with one or more embodiments of the disclosure.

[0021] FIG. 14 illustrates one or more method steps in accordance with one or more embodiments of the disclosure.

[0022] FIG. 15 illustrates one or more method steps in accordance with one or more embodiments of the disclosure.

[0023] FIG. 16 illustrates one or more method steps in accordance with one or more embodiments of the disclosure.

[0024] FIG. 17 illustrates one method of selectively applying heat to at least a portion of a fascia with one or more thermal elements of the disclosure.

[0025] FIG. 18 illustrates another method of selectively applying heat to at least a portion of a fascia with one or more thermal elements of the disclosure.

[0026] FIG. 19 illustrates one explanatory electronic device and attachment in accordance with one or more embodiments of the disclosure.

[0027] FIG. 20 illustrates one explanatory attachment applying heat with one or more thermal elements to a fascia in accordance with one or more embodiments of the disclosure.

[0028] FIG. 21 illustrates one explanatory method in accordance with one or more embodiments of the disclosure.

DETAILED DESCRIPTION OF THE DISCLOSURE

[0029] Before describing in detail embodiments that are in accordance with the present disclosure, it should be observed that the embodiments reside primarily in combinations of method steps and apparatus components related to detecting deformation along at least a portion of a fascia comprising a shape memory polymer, and then selectively